Ticketing for the future?

Research into ticketing technology

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Passengerfocus
putting rail passengers first

Introduction

Passengers want to be able to buy a ticket quickly and easily. However, Passenger Focus research shows that:

- nearly one in five passengers is dissatisfied with ticket buying facilities at stations[1]
- passengers are often having to queue for longer than the industry standard[2]
- passengers want queuing times reduced. The ability to purchase a ticket without queuing for more than two minutes was sixth in terms of priority for improvement, just behind headline issues such as value for money, punctuality and provision of information[3].

With a 22.5% increase in passenger demand predicted by 2014[4] improvements are certainly going to be needed if queuing times are not going to escalate and passenger satisfaction decline. As the role of technology in everyday life grows and the Department for Transport places an increasing emphasis on the provision of new ticketing technology within franchise agreements, ticketing will undergo a huge transformation on the railway over the next seven to 14 years. Passenger Focus has therefore conducted research to find out what passengers actually want from the next generation of rail ticketing technology so that we can present our views to the industry prior to any changes being implemented.

Undertaking a journey by train has traditionally required passengers to purchase a card ticket from a ticket office and produce it for inspection when required by the train operator, be that on board the train or at each end of their journey to pass through ticket barriers. Train companies now take some aspects of revenue protection much more seriously and heavily fine passengers for purchasing a ticket which is not valid. Therefore it is crucial that passengers are given every opportunity to purchase the correct ticket for their journey before they board the train.

As technology plays an increasingly important role in most aspects of daily life and the demands of passengers change, there is clear opportunity for the rail industry to expand the number of channels open to passengers to purchase a ticket. The government recognises this in the recent White Paper – Delivering a Sustainable Railway - and envisages a scenario where the industry embraces new technology across the network leading to a reduction in the number of booking office/ticket machine queues and quicker journeys through the station for passengers.

In London, Oyster cards now account for 63% of all Underground journeys. Countrywide the government is proposing to issue smartcards to as many as 11 million people for national concessionary bus travel from April 2008. With this in mind the focus for the rail industry has understandably been on the development of a rail smartcard. Smartcards will allow people to

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[1] National Passenger Survey, Spring 2007, Passenger Focus

[2] Mystery shop of rail ticketing retail, March 2007, Passenger Focus

[3] Passenger priorities for improvement, June 2007, Passenger Focus & MVA

[4] Delivering a sustainable railway, July 2007, Department for Transport

pay for travel in different ways and will reduce the need to queue in order to purchase a ticket before each journey. However, existing schemes run by operators such as Chiltern Railways and South West Trains demonstrate the practical application of other forms of technology (e.g. mobile phones and print at home) to the ticket purchase process. Capitalising on some of these forms of technology the government and the industry have jointly embarked on a seven-year programme of modernisation, which will involve:

- the introduction of ITSO[5] smartcards on rail in major cities allowing facilities like 'pre pay'
- the integration of new ITSO ticketing with Transport for London's Oyster product in London so that Oyster is accepted for all rail travel in London and ITSO is accepted for bus and Underground travel
- the roll-out of ITSO smartcards more widely across the network
- the ability to purchase tickets that can be sent to mobile phones or printed remotely, for long-distance routes.

Given the proposed programme Passenger Focus has sought to identify passenger views and requirements on the different types of ticket purchasing channels and understand their possible impact on attitudes to travel. Before introducing any new technology Passenger Focus would call upon the industry to consider the needs of passengers, as suggested by the attached report, and adopt an expansive approach rather than one of 'new for old'.

Key findings
There is high interest amongst passengers in using new ticketing technology to resolve some of the problems that they experience when purchasing rail tickets. The problems predominantly focus on the inability of passengers to purchase tickets in a quick and convenient manner in advance of undertaking a journey.

Passengers believe that the solutions need not be radical in their use of technology and that it should be possible to introduce new methods of ticket purchase that are usable by all groups and will be practicable for the industry to implement.

A contactless smartcard demonstrates the potential to resolve current ticketing problems without significant disadvantages from a passenger's perspective. Those who travel most frequently and have had experience of using Transport for London's Oyster card are most receptive to the concept of a rail smartcard and appreciate the benefits that it could offer in the wider context. All users agree that if introduced a rail smartcard needs to be compatible between the different train operators, and where possible other public transport operators.

Provided existing channels of purchase are maintained, even those passengers who are least likely to derive benefit from the introduction of a rail smartcard (low-frequency users, technophobes and older respondents) can appreciate the theoretical advantages of a smartcard. Importantly the introduction of a smartcard would not seem to deter these groups

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[5] The Department for Transport has sponsored an 'open-specification' for smartcards called 'ITSO.'

of passengers from travelling. However if there is to be widespread acceptance of smartcard technology amongst passengers a number of barriers to use need to be overcome.

Passengers like to compartmentalise their travel costs when budgeting their expenditure. There is, therefore, limited interest in extending the application of a rail smartcard to retail beyond the smaller purchases that a passenger might make whilst waiting for their train.

Passengers seemed less receptive to the idea of incorporating ticketing technology into mobile phones, but recognised that this form of technology could play a role for those undertaking short ad hoc journeys.

If mobile phones are to be more widely accepted as a method of ticket purchase, the most significant hurdles for the industry to overcome relate to concerns over reliability and the increased security risk of producing a mobile phone in a busy public place.

Similar to mobile phones, e-ticketing and 'print at home' ticketing options capitalise on widespread technology and are felt to be useful for those who travel infrequently, in particular those who are undertaking longer journeys. However, transferring the cost of ticket printing to the passenger and potential acceptance problems at the barriers were just two of the limitations highlighted by passengers.

It is clear that smartcard, mobile phone and print at home technology all have a potential role to play in overcoming the problems that passengers currently experience when trying to purchase tickets in advance of their journey. However in order to gain widespread acceptance amongst passengers a number of significant hurdles has to be overcome and, most importantly, the solutions need to be carefully explained.

What next?

Passenger Focus will continue to monitor the introduction of new ticketing technology by the train operators and will use the findings of this research to ensure that the views of passengers are at the forefront of any change.

Ticketing Technologies
Qualitative Research

Research Report

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Management Summary

- Passenger Focus needs to understand rail passenger requirements of potential future ticketing technology intended to resolve the problems that they currently experience.
- **10 Group discussions** (6-8 respondents per 90 minute session) were conducted among rail users (including Commuters, Business Users, Leisure Users, technology innovators and technophobes and disabled railcard holders). The research was conducted in October 2007.
- Overall, this research has confirmed that there is high interest among passengers in the idea of new ticketing technology and that a practicable solution may exist which is usable for all passenger types and the industry.
- As we have found in work previously conducted for Passenger Focus, ticketing issues are inextricably linked to the subject of fares in the minds of most consumers. Problems experienced predominantly focus on the inability of the current system to provide passengers with tickets in a quick and convenient manner in advance of journeys undertaken.
- The general feeling among passengers is that a radical or innovative solution is not required. Instead the priority is to apply existing technology in a practical manner in a way that all user groups will be comfortable with and that TOCs will be able to cope with.
- A contactless Smartcard on the evidence from this research appears to demonstrate the potential to resolve current ticketing problems without insurmountable disadvantages from a passenger's perspective. Those who have experience of using this technology in the London area can readily appreciate the benefits in a broader context.
- Older respondents, technophobes and infrequent rail users less receptive to the prospect of a Smartcard product were still able to recognise its advantages at a theoretical level. However, the research also identified a number of concerns and reservations that will need to be addressed at the concept development stage if there is to be widespread acceptance of Smartcard technology among all rail passengers.
- Importantly, the research has indicated that those who are least likely to derive a personal benefit from a Smartcard ticketing system are unlikely to resist its introduction in principle or to make fewer journeys as a result of it being implemented providing existing channels of purchasing a rail ticket are maintained.

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- The concept of incorporating ticketing technology into mobile phones was less universally welcomed across the sample and was resisted by some respondents, primarily due to reservations surrounding reliability of current functionality and security concerns.

In summary, the research has indicated that passenger problems currently experienced with ticketing could potentially be overcome by implementing a system based on existing technology that would be acceptable across all user groups and practicable for the industry to implement. Our recommendations to Passenger Focus are therefore as follows:

- **Investigate further the potential that appears to exist with a contactless Smartcard with a stored value facility.**
- **Continue to take into account the views of all user groups, especially those likely to derive least benefit from the system such as infrequent travellers and those who make longer distance and more expensive journeys.**
- **Consider how the technology could be used alongside non-card based devices, especially mobile phones, in order to enhance the appeal of any future solution to as many passengers and user groups as possible.**

1. Research Context and Objectives

This research project was commissioned by Passenger Focus to identify areas of the current ticketing system which rail passengers feel could be improved. A qualitative approach, using focus groups, was applied in order to fully understand the views of rail passengers across the country.

The specific objectives were:

- To identify areas in which rail passengers feel current ticketing systems could be improved.

- To understand how different consumer segments use technology and how this impacts on future ticketing developments.

- To explore mobile phone, Smartcard and print at home as future alternative ticketing options as well as their potential impact on future travel and attitudes to rail travel.

- To understand the role that payment cards and stored value prepayment are expected to play in future ticketing.

- To gain an understanding of rail passenger requirements on ticket availability and purchasing channels.

- To understand the extent to which consumers feel technologies need to be integrated across rail networks and other modes of transport.

- To understand the role of fare prices in current ticketing systems and the anticipated implications for future alternative methods of purchase.

2. Sample and Methodology

A focus group methodology was employed to meet the research objectives. The sample was constructed to represent a broad cross section of rail passengers and encompassed heavy and light rail users and varying journey lengths, technology innovators and technophobes, a spread of age and Socio Economic Group, some disabled railcard holders and a mix of ethnicity and gender. Fieldwork was conducted in Southampton, London, Cardiff, Newcastle and Glasgow in October 2007.

Ten group discussions, each lasting approximately 90 minutes were conducted, structured as follows:

- Two focus groups in Southampton
    - Group one: rail passengers who travel frequently and have a high personal income (more than £40k).
    - Group two: a range of frequent rail passengers between the ages of 25 – 59.
- Two focus groups in Glasgow
    - Group three: rail passengers who are 60+ of age and have a low personal income.
    - Group four: a range of rail passengers who are technological innovators.
- Two groups in Cardiff
    - Group five: a range of rail passengers who are technophobes.
    - Group six: rail passengers using the valley lines that have limited opportunities to purchase tickets.
- Two groups in Newcastle
    - Group seven: rail passengers within the age range 16-24 and have a low income.
    - Group eight: infrequent rail travellers.
- Two groups in London
    - Group nine: a range of rail passengers who are technological innovators.
    - Group ten: a range of rail passengers who are long distance travellers [1].

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[1] Long distance travellers made journeys that were 100 miles plus to qualify.

Additional Recruitment Criteria

All groups included:

- A mix of both sexes.
- A representation of age groups and lifestages as appropriate to each of the passenger categories, e.g. mothers with (pre) school age children, retired/grandparents etc.
- A mix of social grades to reflect the profile of the local population and incomes of rail user groups (e.g. BC1; C2D).

    Standard industry exclusions applied to ensure that the research did not include any respondents who work in market research, marketing, advertising, journalism and on this occasion anyone who has anything to do with the railways or public transport.

3. Main Findings

3.1 Context on Ticketing

Current Ticketing Issues

Many of the current issues raised by respondents to do with ticketing centred around fare pricing and the perceptually complex fare structure. Many passengers claimed to be unsure how to get the right ticket or the indeed the best fare for their journeys. This results in a frustrating experience for many passengers who, in some cases, are unable to purchase a ticket easily or quickly enough and therefore have to miss their train or risk a penalty fare.

Ticketing issues identified echo the themes highlighted in the 'improvements' project conducted earlier this year this year by Outlook Research and can be summarised as follows:

- Channel enhancements in terms of increased choice and efficiency for purchasing tickets.
- The need for a more flexible response to passenger needs and requirements in this respect.
- The need to make the whole process as seamless as possible.

All of the passenger groups represented experienced ticketing problems to some degree. However, ticketing issues take differing priority among the various segments. For example, a common problem experienced in both Cardiff and Glasgow was the length of ticket barrier queues faced by those rail passengers arriving at the station who had been unable to buy tickets on their train. This caused problems for those who hadn't purchased tickets and those who simply needed their ticket checked. This issue is of particular importance for regular users who do not use season tickets and purchase their fares on an ad hoc basis. Specific problems were also mentioned in Southampton which were largely due to the heavily publicised penalty fare policy of one of the local train operators. Passengers felt the policy to be too punitive for those who try to obtain a ticket for journeys but have difficulty in doing so.

Ticketing Problems Experienced

The failure of the current system to provide tickets in advance of travel in a convenient manner is, for the majority, the root cause of ticketing issues. The research identified a number of specific problems that have been experienced by passengers which are outlined below:

Long Queues: Queuing for tickets is the most frustrating part of the ticket purchasing experience for many passengers. However, those less frequent travellers and those using rural lines in Newcastle did not cite queuing as a major problem since tickets can be purchased easily on the train without the bottlenecks that seem to regularly occur at Cardiff and Edinburgh.

"It's just quick and easy to get it from the conductor and there should always be the option to buy from a machine."
[Newcastle, Older, Infrequent]

" I try to go for the cheapest ticket but it's hard to find out what the best ticket is, there's no-one at the ticket office sometimes so I get on the train and buy it from the conductor, he just sells you a ticket, he doesn't advise you on the best one for your journey."
[Newcastle, 30-59, Infrequent]

Staff Knowledge: Many respondents across the sample expressed frustration at their reliance on station staff for ticket information, often with little confidence that they were being sold the correct or cheapest one for their journey. This is compounded by the fact that information is not felt to be readily available at many stations and ticket machines are unable to sell the full range of ticket types.

"Occasionally when you go to buy a ticket and don't really know what ticket to get, I ask for advice or information and they don't know either."
[London, Technological Innovators]

"I'm always afraid the machines will chew up my card and not give me a ticket so I go to the window"
[Glasgow, Older, Infrequent]

Poor Customer Service: Some complained that station staff were not always able or willing to help passengers with enquiries regarding the best type of ticket to purchase for (more complex) journeys.

Website Usability: Some passengers reported problems using websites to book tickets. This tended to relate to the complexity of fares which is exacerbated by online purchasing. Additionally, some respondents mentioned unreliable web sites that had frozen at the point of booking while others were reluctant to book on line often as a result of security concerns.

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"I always buy tickets at the station because going on the internet to look at them just confuses the hell out of me – a massive table with all the rates in. I seem to get a better deal at the station."
[Southampton, 30-59, Frequent]

"Buying tickets on the Internet can be annoying, you have to remember your password, and it's so frustrating if it doesn't go through or the page crashes which seems to happen a lot."
[Newcastle, 30-59, Infrequent]

No Link with Other Transport: This was identified as a problem for passengers in most of the locations represented. For example in Newcastle, passengers recalled times when they have had to get off the train to go through the ticket purchasing process again to get on the Metro system. A ticket which linked (public) transport systems would therefore be desirable to many as it would help make the whole journey as easy and seamless as possible.

Parking Separate: Those passengers who drive to the station claimed that incorporating a parking ticket into the cost of the train ticket would stream-line the process and encourage them to use rail travel more frequently. This was especially felt to be the case for shorter journeys where currently, taking the car can be a much easier experience.

Can't Buy Ticket on the Train: Not having the option to purchase a ticket on the train is felt by many to be a real problem, especially at busy stations that tend to have long queues, particularly during peak times. This can lead to passengers taking the decision to try and purchase a ticket on board the train and then being charged a penalty as a result.

Can't Phone Local Stations: Often perceptually linked to the poor customer service issue. Older respondents in particular found it frustrating to have to call a central number for information rather than being able to talk to someone at the local station. Their perception was that local station staff would be more likely to be in a position to provide advice about local journeys.

Ticket/Permit Machines Broken: Malfunctioning ticket and permit machines are a source of frustration for those in a hurry to board trains. This poses a particular problem for those passengers using stations with ticket offices that close in the evening.

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"There are some automated machines but I'm put off using them because they are all really old and look like they would swallow your money up."
[Newcastle, 30-59, Tyne Valley Users]

"Machines at stations can be tricky, there are too many options, it's confusing, especially for older people."
[Newcastle, Older, Infrequent]

Insufficient Staff/Machines: A frequently identified issue in relation to problems experienced with current ticketing systems.

"There needs to be more manned windows, it's so frustrating when there are ten windows available and most are closed."
[London, Long Distance Travellers]

Future Visioning

Across all groups it was felt that a radical alternative to the current system is not needed to overcome existing ticketing problems. Rather, a streamlining of the current fares and ticketing regime would be enough to create more efficient and seamless experience for the vast majority of user groups. However, it is important to find a position for any proposed new technology that all user groups will be comfortable with and that all TOCs would be able to cope with across the network.

However, during the group brainstorming exercises, passengers were able to envisage a suitable system that improved on both past and current systems. The possibility of introducing more staff and machines was not seen as a realistic proposition for most passengers since this would be a regressive step and inadequate to alleviate current problems experienced. Similarly, improving current ticket machines, or rolling out ticketing methods established in other areas of transport (such as print at home tickets, buy by text or e tickets) were not progressive enough to improve on the existing methods of purchase. Passengers were able to spontaneously suggest new technologies and how they might relate to rail tickets. Smart Cards, contactless payment and pre-payment were all felt to be plausible solutions with out being overtly futuristic.

"Something like the Oyster Card system, if you used it on South West Trains it would calculate it on a daily, weekly, monthly or annual rate depending on how much you use it and you could pay as you go along."
[Southampton, Commuters]

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"You could have a kind of credit card and just beep it through the machine and it could work out the cheapest ticket for you."
[Cardiff, Technophobes]

"It would be good if you could top a card up at the Post Office, stop in the paper shop and top your card up for the rest of the week, like a mobile phone top up."
[Cardiff, Technophobes]

Role of Technology

All groups accepted that technology is playing an increasingly important role in most aspects of daily life. The internet was acknowledged as being the default channel for almost all communications and many transactions with most passengers having experience of booking tickets and checking timetable information online. There was some spontaneous awareness that mobile phone technology is becoming increasingly sophisticated to the extent that some could envisage potential applications for train ticketing.

Understandably, some older and technophobic passengers expressed concerns about new technology being introduced into the ticket buying process, especially if this would have an impact on staffing levels at stations. With most passengers applying an open minded approach to the role technology could play in rail ticketing, there appears to be clear scope for new innovative methods to be introduced on the basis of this research. In this respect, it is important to bear in mind that only a small minority of this sample (and consumers generally) were truly leading edge in their usage and appetite for innovation. This has direct implications for the role of technology in future ticketing solutions. Passengers' primary concern is that technology is applied to counter current problems experienced rather than being introduced for the sake of development or innovation alone. Crucially, the optimal solution envisaged by passengers was realistic, rather than futuristic and felt to be acceptable to all segments without the apparent risk of marginalising any user group.

3.2 Smartcard

Contactless Smartcard - Concept

This concept was spontaneously suggested during the brainstorming exercise in almost every group, including those with no prior knowledge of Oyster. For passengers, the Smartcard concept demonstrated most potential to resolve current ticketing issues with no obvious disadvantage for the consumer. The key benefit was the ability to

avoid queuing and purchasing a separate ticket for each journey made. The reassurance of always having the ticket with you was highlighted by those concerned about penalty fares. Those aware of the Oyster card and current users were most readily able to appreciate the potential benefits of a national roll out across the rail network. Others could appreciate the theoretical advantages for both rail users and TOCs alike.

Passengers identified a number of strengths relating to the Smartcard concept, which can be summarised as follows:

Existing Technology: Since the Smartcard idea has been tried and tested in the form of the Oyster card, passengers concurred that they would feel more confident using it knowing that it had been successfully implemented in London.

One-off Acquisition: Removing the need to purchase a ticket for each journey was perceived as a major benefit, especially for those making frequent journeys. Most felt that the disadvantage of the acquisition process would be outweighed by the usage benefits over time.

"I think this is fantastic, I load it up at home with a certain amount, it automatically tops it up so I don't have to think do I have change, I don't have to queue up... I love it!"
[London, Long Distance Travellers]

"You would always have it on you so even if you ran out of credit you could still make a journey."
[Newcastle, 30-59, Tyne Valley Users]

Durability Vs Paper Ticket: Identified as a major benefit for those currently using season tickets that need to be inserted into automatic barriers.

Contactless at Barrier: Eliminating the need for ticket checking at the barrier by a member of staff would make for a seamless and speedy transition on and off trains. This was recognised as a compelling advantage across the sample.

"It would make it quicker and easier, the way you just go through and swipe your card."
[Cardiff, Technophobes]

"It's like when I go to the football. I used to get a season ticket and you had to carry that but now you just have a swipe card."
[Glasgow, 30-59, Technological Innovators]

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"It means you can walk into the station, go through the gate, get on the train and you don't have to talk to anyone or deal with a machine."
[London, Technological Innovators]

Pre-Payment (Budgeting): The ability to pay for train travel in advance was welcomed by those passengers who travel most frequently as a budgeting aid, although tended to be resisted by others making less frequent or ad hoc journeys.

PAYG and season tickets on one card: This was envisaged to enable the holder to have a period pass loaded onto the card combined with the additional facility of being able to pay for other or extended journeys (via a link to a preferred payment card nominated either at the time of acquisition or on a per journey basis).

Top Up Options: Passengers were able to spontaneously envisage a variety of top up channels which they likened to topping up a pay as you go mobile phone. Multiple options in this respect provided a feeling of superior flexibility over existing ticketing options.

More Secure than Cash: Those still preferring to transact with cash rather than payment cards could appreciate the obvious security benefits of being able to load value onto a Smartcard rather than making multiple transactions.

Removes Face-to-Face purchase contact: Younger respondents and regular travellers especially recognised this as a potential benefit over current systems**.**

"This card would be a revelation in Glasgow because often if you don't have the correct change they won't let you on."
[Glasgow, 30-59, Technological Innovators]

"We are always in a hurry so it speeds up the process I guess, the less human contact you have the better."
[Southampton, Regular Travellers]

Minimises Pre-Planning: The perception was that a Smartcard would allow passengers to turn up and go without needing to pre-purchase their tickets online or from the ticket office in advance of the journey. In reality however, this is only likely to be a benefit for those making low cost journeys.

"This is ideal, especially for spontaneous journeys, it's flexible and easy, it would encourage you to use trains more often I think."
[Cardiff, Technophobes]

Avoid Ticket Complexity: Many passengers claimed to be bewildered by the range of tickets and pricing structure. Some were unconvinced that they always purchased the best ticket for their journey. Some therefore hoped that the Smartcard technology would remove this step from the experience by automatically recognising the best fare for journeys made. This benefit would also be unlikely to materialise in reality without radical change to the existing fares structure.

Differential Pricing: A system which automatically calculates the best price for your journey was spontaneously hoped for in most groups during the brainstorming session. Those familiar with Oyster assumed that this feature would naturally transfer over to a Smartcard for the rail network. This feature was especially appealing for those passengers who feel they do not always get the best ticket/price for their journeys.

"This seems really good, especially if you could rely on the technology to give you the best price for your journey."
[Cardiff, Technophobes]

"There's a very clear financial incentive because journeys on Oyster card are cheaper, you'd be an idiot to go on using a travel card."
[London, Long Distance Travellers]

Price Capping Assumed (weekly/monthly): Again those familiar with Oyster hoped that this feature would apply (although many anticipated the additional complexity of multiple TOCs and therefore felt that this may be unlikely).

Tie in with other Transport: This was felt to be a necessary and logical function to passengers who could envisage using the card on buses, in taxis or even for parking meters and car parks.

"I like the idea of car parks and parking meters because I never have the change, it would make it so much more convenient."
[Cardiff, Technophobes]

"It would be very handy to have a card you could use on all public transport."
[Southampton, Frequent travellers]

Compartmentalisation: This relates to the 'jam jar' approach to budgeting of monthly expenditure that is a common feature of financial and household management among consumers. The Smartcard would become the physical storage facility for all travel expenditure.

Tackle Fare Dodging: Some anticipated that a Smartcard could potentially be used by TOCs to help in this area, especially in conjunction with automated barriers.

Future Multifunction Applications: More sophisticated respondents recognised the potential for a Smartcard to have much wider functionality beyond train travel in future. Some in London and Southampton were already aware of the multifunction Barclaycard as the model for this.

Despite the positive reception the Smartcard received, there were also a number of questions and reservations expressed across the groups. These can be summarised as follows:

Lack of TOC Consistency Anticipated: Some expressed the concern that the scheme wouldn't operate on a nationwide basis due to the competition and inconsistency of current ticketing procedures across TOCs. This was expected to present most difficulty for those making regular journeys in different areas of the country.

Removes Advanced Purchase Discounts: Many passengers making long distance journeys felt that they benefited from purchasing their tickets in advance under the current system. Some expressed concern that this facility may be lost with the introduction of a Smartcard which may not be smart enough to accommodate this benefit to passengers.

How Accommodate Rail Card Discounts: Passengers expressed concern that the new ticketing system may not be able to recognise and incorporate present rail card discounts, especially on long distance journeys. Reassurance would therefore be required in this respect.

Security Concerns – Lose Wallet?: The stored value element of the card raised concerns amongst passengers, who questioned what would happen if the card was lost or stolen. Most thought pre-registering the card would allay these concerns. Some envisaged an automatic process for cancelling the card so they wouldn't be left out of pocket or without the means to make journeys for a long period of time.

For Frequent Users Only: Infrequent users felt that they did not use rail travel enough to justify acquiring a card or storing credit on it. For other users, a pay as you go facility (via a link to a nominated payment card) would be more attractive than pre-payment.

"I don't use the train enough to use a Smartcard, there would be money on it which you couldn't use apart from for trains."
[Newcastle, 30-59, Tyne Valley Users]

"It would be no good for me, I travel once a month, but sometimes it might be once every six weeks and I don't want to top the card up with money for it just to sit there."
[Cardiff, Valley Line Users]

Unable to Reserve a Seat: Those making long journeys were very concerned that this would be a problem with a Smartcard as they were often unable to imagine how this would work. This would be a further area where reassurance would be required if the concept of a Smartcard is to be progressed further.

Some Resist Pre-payment in Principle: Financially sophisticated consumers resist the concept of pre-payment unless there is a compelling benefit to do so. Frequent travellers anticipate cost-saving and convenience benefits for paying for journeys in advance but less regular users are likely to be more reluctant to do so.

"I wouldn't want money on the card all the time; I don't know how much I am going to spend so I'd rather pay when I need to."
[Southampton, Frequent]

Some Resist Link to Payment Card: There was some feeling that the need to create a link to a payment card would encourage over-spending and lead to a loss of control rather than making budgeting easier by having stored value on a Smartcard.

Need to Know How Much Tickets Cost in Advance: Since ticket price and value for money is top of mind for all (non-business) passengers, many need to know exactly how much tickets cost in advance of travel to allow for budgeting and allocating sufficient pre-payment for the journey. Some expressed concern that they may lose the incentive to do this with a Smartcard or that they would need to check statements carefully to ensure that they had not been overcharged for journeys made.

"It's more fundamental than technology. It doesn't matter what technology you have to buy the ticket, the point is you need to understand the pricing, it should be simple and up front... You can't argue with a machine if it takes too much from you and ask for your money back can you?"
[Cardiff, Valley Line Users]

"With the underground you know how much each journey will cost, it's one company running the whole show but if you are travelling all over the country and automatically swipe your card it could come up with

£96 instead of £48 because it's peak hours and you can't get your money back once it has swiped."
[London, Long Distance Travellers]

"First and foremost, you have to know what the price is before you travel.... so how would the Smartcard tell you this?"
[Glasgow, Older, Infrequent]

"If there was a screen to show you the price of the ticket, you would need to be sure it took the right money."
[Newcastle, Younger, Tyne Valley Users]

Need Individual Cards for Children: Some were not sure whether Smartcards would be able to accommodate family tickets and rail cards and wanted reassurance that these benefits would not be lost under a new system.

Concerns that Staff Will Go: Tyne Valley users who are more reliant on station staff for information expressed concern that the introduction of new technology signalled the end of staff presence in stations. Many felt that a staff presence should be maintained, in spite of the proposed changes.

Contactless Smartcard, by User Group

Even those users who were least likely to derive maximum benefit from Smartcard implementation would be unlikely to resist its introduction or make fewer journeys as a result.

Frequent users were most receptive to the idea and were able to recognise the advantages the system offers. They envisaged loading a season ticket on the card and using a pay as you go function for ad hoc journeys.

Innovators were most frustrated by current ticketing measures. This group were therefore most welcoming of the Smart Card concept. In recognising the benefits of the card, even they felt there was no need for anything more complex.

Infrequent travellers, as the group with the lowest needs, were less receptive to the Smartcard concept. The current problems highlighted by other groups were experienced to a lesser degree and most were satisfied with current ticketing systems. They were also reluctant to pay in advance and to store value on a card, as previously explained.

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However, they were able to recognise that the system would solve queuing problems and would be safer than carrying cash.

Technophobes were the most cautious and indeed more likely to habitually resist any change. However, they were also able to recognise the benefits of the Smartcard idea and admitted to being open to it in principle. The need for a face-to-face top-up facility was highlighted as was the retention of current methods of purchasing tickets.

Contactless Smartcard – Extension

Whilst many welcomed the idea of extending the Smartcard into other areas of travel, anything further than this was often opposed as a step too far at this stage.

Some passengers in London were aware of the Barclaycard multifunction Oyster product. There was limited interest in this idea across all groups. The idea of a consolidated travel card and payment card tended not to be welcomed as a simplification measure but instead conflicted with established budgeting mindsets. The 'compartmentalisation' in which each area of expense is accounted for in a mental moneybox was threatened by the idea of a homogenous card which mixes up expenses by throwing them into the same 'pot'. The concept was often felt to be too confusing and was therefore often rejected.

The Octopus Card (used in Hong Kong and explained to respondents) was welcomed on the basis of its multi modal application which had often been spontaneously requested as a future ticketing development. Parking payment was seen as a beneficial function, especially to those who drive to train stations as part of a commuting journey. The payment facility was thought to be acceptable in a travel context i.e. buying a snack or newspaper from a retail outlet at a train station. Usage beyond this was resisted however, on the basis that it was expected to be a temptation to spend on unnecessary items. The anticipated value of pre-payment that would be required to support additional spending was also problematic for some, especially infrequent travellers.

"Why would I need another card when I can pay with my debit card?"
[London, Technological Innovators]

"It would be good to use it on the train for snacks and drinks, otherwise it would be too tempting to have another card in my purse."
[Newcastle, 30-59, Tyne Valley Users]

"I would be happy to use it for parking but not in a restaurant."
[Southampton, Commuters]

"I like it (Octopus Card). It would be good to pay for all those little bits."
[London, Technological Innovators]

"I prefer to have a card just for travel; it would get too confusing otherwise."
[Southampton, Commuters]

3.2 Mobile Payment

Intrinsic to passenger appraisal of mobile technology are concerns over reliability, especially when linked to a payment facility. This was a dominant theme across this sample and in other projects conducted by Outlook for financial service providers that have investigated extending the functionality of mobile phones.

Some were already familiar with the concept of having tickets emailed to a mobile phone through dealings with companies such as National Express and cinema tickets (Orange). From this, and the other research we have conducted in this area however, there is widespread scepticism about using mobile phones in this way and stronger resistance to linking them with payment technology.

"I don't know how it would work on the train but with National Express you just show it to the driver as you're getting on, it wouldn't be that easy on the train."
[Cardiff, Technophobes]

The majority of these concerns are associated with current network coverage and reliability. Specifically in this respect, many could not see how mobile phones could represent the future of ticketing technology until the current problem of patchy signal strength is resolved.

"But you would need a signal on your phone for this, it can be dodgy in the country."

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[Newcastle, older, Tyne Valley Users]

"It is a great idea but what if you have no signal at the station, how would you prove you have a ticket?"
[London, Long Distance Travellers]

"You have to rely on your mobile having reception, not having any signal or the network being busy and it doesn't come through in time, things like that. If the provider goes down it's just another hurdle to cross, an extra thing to worry about. "
[Southampton, Frequent Travellers]

While some passengers were receptive to having the option of using mobile phones to resolve ticketing problems, there were others who expressed concerns about this concept being advanced as the only solution. As a context for these reservations, some were uncomfortable with texting and others had latent awareness of problems associated with extended mobile phone applications such as WAP and 3G. Respondents also anticipated problems at ticket barriers, especially the increased security risk of having to produce a mobile phone in a busy public place. These reservations were exacerbated by the Helsinki case study shown in all groups which featured extended mobile phone functionality in the area of public transport. Respondents felt that the Helsinki example would be useful for tourists rather than being a benefit for regular users of the transport network. Some were also uncomfortable with the idea of adding transport costs to their mobile bill (for reasons explained previously to do with compartmentalisation of expenditure).

"I'm Pay As You Go so wouldn't have enough money on my phone to use it to pay for travel."
[Newcastle, younger, Tyne Valley Users]

"If you showed your mobile in Glasgow it would get stolen!"
[Glasgow, Older, Infrequent]

"You're not going to save any time by using your mobile phone. You are still going to have the same queues."
[Glasgow, Older, Infrequent]

"I wouldn't trust the information to be up to date on a phone so would end up looking on the internet anyway."
London, Long Distance Travellers]

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3.3 Purchase / Print at Home

This was felt to be simpler technology than a Smartcard and applicable to situations beyond rail travel. This was familiar and established technology for many therefore most felt comfortable with the concept. The main strength of this concept is the remote / advance purchase function that alleviates the problem of queuing for a ticket at the time of travel.

However, this idea did meet with some criticism to the extent that the associated problems were usually felt to outweigh its potential advantages. Some passengers were not comfortable using the internet to book tickets citing security concerns and low familiarity as the main barriers. Unlike a Smartcard, print at home tickets are only good for one journey only, which is why this solution was felt to be well suited to airline travel but would be impractical for those making regular train journeys. Passengers resisted the onus of responsibility which they felt this method placed upon them (remembering to print the ticket, remembering to bring it etc.) and the increased cost and associated inconvenience of using one's own computer, printer and ink in this way. Furthermore, those less comfortable with technology anticipated the likelihood of acceptance problems at barriers which may be as a consequence of their own error which could then result in a penalty fare.

'"That seems to be you paying the company but you are printing your own ticket so you are doing it all for them."
[Glasgow, Older, Infrequent]

"I'd worry I would mess it up, you can't explain to a computer what you want, I worry I pay more on the internet."
[Cardiff, Valley Line Users]

"It would be much less crowded in stations, I think things would run much smoother."
[Southampton, Commuters]

"Fair enough if you are going once a week or once a month but if you are going several times a week it's not practical."
[London, Technological Innovators]

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"I don't know if it's any quicker than queuing. The train guards take a long time to read the eticket to make sure they are in order, rather than a normal ticket which they glance at and say yes."
[Cardiff, Technophobes]

"It sounds ok in theory but it wouldn't be practical for making lots of journeys."
[Newcastle, 30-59, Frequent]

"I don't like the fact it's all on me to remember to print it off and bring the ticket with me, I would be even more stressed that usual!"
[Newcastle, 30-59, Frequent]

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4. Conclusions and Recommendations

This research indicates that there seems to be potential to overcome many of the current ticketing problems faced by passengers in a solution that will not be too challenging or off-putting for any user group or the industry itself.

Many of the user groups represented in this sample claimed to have experienced ticketing problems of some sort in the course of journeys made across the network. Most therefore approached the creative brainstorming exercise conducted during the group discussions with a positive and constructive mindset and were also open to the range of suggestions presented for research intended to resolve the problems identified.

Importantly, even those passengers recruited as technological innovators do not think that a radical solution will be required in this respect. Instead, the universal view among passengers was that any future system should focus on resolving the current difficulties experienced rather than being unnecessarily innovative or sophisticated for the sake of appearing to be new and different.

To this extent, not only did passengers voice a preference for a system that would be easy to understand and use but many recognised that an established model already exists in the London area. The widespread expectation therefore was that a future ticketing solution for the national rail network could build on existing technology to enhance current experiences rather than needing to risk investment in new innovation.

A contactless Smartcard that can accommodate season tickets and stored value allowing passengers to make ad hoc and extended journeys in addition to their regular travel seems to demonstrate the potential to meet the needs of passengers without marginalising any user group. Furthermore, the expectation among consumers was that the success of a system already established in the context of public transport in the UK should provide a degree of reassurance to TOCs.

Although the idea of a Smartcard was welcomed in principle by passengers, some were understandably concerned that this system would meet the needs of certain user groups more than others. In this respect it will be important to consider the views of those least likely to derive benefit from any proposed new system during subsequent stages of concept development.

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It will also be important for some user groups to be reassured that any new system introduced will be in addition to rather than a replacement for established and familiar methods of purchase.

On the basis of this research therefore, our recommendation would be to explore the potential for a Smartcard solution and to investigate application across the rail network. A further advantage of the Smartcard concept is that a card is simply a vehicle for the technology which could be hosted by other devices such as a mobile phone for those who would find this appealing.

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5.   Appendices

5.1 Discussion Guide

Introduction
Name, age, occupation, nature of train journeys most frequently undertaken

Journey Types
What train journeys have you made in past six months. What is main purpose of these journeys - Commuting; Business; Leisure; Other? How frequently are these journeys typically made? What other modes of transport do you use? How does your rail travel compare to other modes of transport? Why is this? Have you ever travelled by train with children? Have you ever travelled with friends by train? How does this differ from travelling alone? What are the issues?

Ticket Purchasing Experience
What ticket types do you currently purchase? What are the names of the tickets you currently buy? What other ticket types are you aware of? Have you ever purchased these tickets? Are you satisfied that you generally get the right ticket for your journey? How do you know? Describe to me the process of purchasing a ticket. How do you feel before you make the purchase? Which method do you use most frequently to purchase tickets. i.e. on line, from a machine or in person. Why do you choose each method? What are the benefits of purchasing this way? What are the drawbacks? What are the main issues you encounter when purchasing a ticket? How could these issues be overcome? Have you experienced any problems buying tickets? Explain to me what happened?

Brainstorming exercise – Future Visioning
Moderator to run open-ended and creative session with respondents to spontaneously identify future ticketing improvements and ideal purchasing experiences. Explain that responses should not be constrained by what passengers think will be possible but instead they will be encouraged to envisage what would be better than the current arrangements.

Describe the ideal experience of purchasing a ticket from beginning to end. What would the ideal ticketing system offer you? What would be the main differences and improvements? If you were put in charge of improving the current ticketing system, what changes would you make? Why. What are the main areas for improvement? Do you feel that there are enough options available to you when it comes to purchasing a ticket?

Let's talk through some ideal ticket purchasing scenarios to envisage how improvements could be made in the future. For each scenario, outline:
- Description of journey type
- Ticket requirements
- Information / decision making requirements
- Payment channel options / preferences
- How would you like to feel when buying the ticket
- How would the experience differ to the current one
- Role of (new) ticketing technologies
- Practical / logistical considerations / constraints
- Need for / how to get 'ticket'
- Priorities within above process

Attitudes to Technology
How do you feel about using technology? Does the subject interest you? Would you say you are the kind of person who embraces new technology? If yes, how do you embrace it? In which other areas of your life do you use technology? How do you feel about this? What does technology mean to you? When it comes to rail travel, how do you feel if you have to pay for a train ticket using an automated machine? Do you find them easy to use? Do you ask for help? Should there always be the option to purchase the ticket from a person. Why. How do you feel about buying tickets online or remotely? How could this be improved / made easier in future. How else could technology play a role in this respect?

Role of technology
How do imagine rail travel will be different in the future. Give me some ideas. What role do you think technology will play? What are the implications for ticketing? What current technologies are you aware of when it comes to purchasing a ticket? How do you feel about using these? Do they make ticket purchasing easier or more complex for you. How do you feel about technology in other areas e.g. E-tickets, Oyster Cards, contactless payments, e-payments, virtual accounts, electronic purses, mobile phone (payment) technology? Which of these are you aware of? How? Have you used any of these? Which specifically? What were your experiences of using them? How did it make you feel? Could any of these be applied to rail travel? How do you envisage it would work?

For any of above that respondents are aware of or interested in, brief spontaneous discussion to cover:

- Perceived benefits / problems
- Required features
- Triggers / barriers to usage

Explore specifically with **Technophobes:** Would you want technology to play more of a role? How would you feel about this? Which would you be most / least interested in? Would you feel confident using new technology to purchase your tickets? Would it be important to retain current purchasing methods? Would it put you off travelling by rail?

Exploring New Ticketing Technologies

The purpose of this section of the discussion is to build on spontaneous suggestions that have emerged from the earlier brainstorming exercise. We do not propose to explore all of the examples in detail but will select those that seem most appropriate to respondents' needs based on previous discussion. In each instance, respondents will be shown brief details of how technology has been incorporated into ticketing and invited to discuss likely future interest and relevance to them.

Mobile Phone Tickets
Chiltern Railway Case Study

Have you ever used a ticket on your mobile phone? What are your initial reactions to this idea? Which of the current issues we outlined earlier would this method over come? What would encourage you to purchase your tickets this way? What are the benefits of this method? And the drawbacks? What other features should this involve? What would encourage you to use this method? What else would you need to know? How would this improve the experience of buying a ticket? Would you use this method? Why/not? What do you see as the key benefit of this service?

Helsinki City Transport Case Study

What are your initial reactions to this example? How would you feel about ordering your tickets on your mobile? What would be the benefits of this method? What else would you need to know? What is your reaction to the real time information delivery? Is there anything other than timetable information that should be included here? How do you access this kind of information currently? What about the alarm function? Would this be useful? Do you find it problematic knowing when to get off? How would you feel about paying for your ticket on your telephone bill? What would work better for you? What is the benefit of saving journey details to your mobile? What do you see as the key benefit of this service?

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Smart Cards
Oyster Cards Case Study
Have you ever used a Card like this? What are your initial reactions to this idea? Which of the current issues we outlined earlier would this method over come? What would encourage you to purchase your tickets this way? What are the benefits of this method? And the drawbacks? What do you think of the credit card function of the card? Is this a good idea? What other features could the cards include? What would encourage you to use this method? What else would you need to know? How would this improve the experience of buying a ticket? How would you prefer to put money on the card? What would work best for you? Would you use this method? Why/not? What do you see as the key benefit of this service?

Any awareness of recent news stories to extend Oyster across the rail network. How do you feel about this? What would be the benefits / disadvantages for you? Where would you want to purchase / top-up your smartcard? Would you be prepared to pay a fee to transact with a person rather than a machine or online? Why would this not be acceptable given the staff costs? What would you expect to happen if your smart card was lost of stolen?

Octopus Card Case Study
What are your initial reactions to this idea? How does this card differ to the Oyster Card we looked at? What current issues would this card overcome? What do you think of the idea of combining a smart card with a credit or debit card facility? What would be the benefit of this? Does it seem like a realistic proposal? Would you be interested in this idea? Where would it be most useful to use this card? How do you feel about using the smart card across different transport networks? Which specific modes of public transport should be included? How do you imagine this would work? Ideally, how would you prefer to put money on the card? What do you see as the key benefit of this card?

E tickets
Train line Print @Home Case Study
What do you think of this example? Have you ever used a print at home ticket? What are your initial reactions to this idea? Which of the current issues we outlined earlier would this method over come? What would encourage you to purchase your tickets this way? What are the benefits of this method? And the drawbacks? What other features should this involve? What would encourage you to use this method? What else would you need to know? How would this improve the experience of buying a ticket? Would you use this method? Why/not? What do you see as the key benefit of this service?

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Frequent Travellers

How would you feel about printing your own ticket each time you make a journey? Of the three examples I have shown you, which would be your preferred method of ticket purchasing? Why? How would this overcome current issues?

Are there any other methods which would work in this situation?

Technophobes Would you be comfortable using these new technologies? Which method would you be most comfortable with? What? What assurances would you need?

Role of price in Ticketing
How do you feel about the current cost of the tickets you buy? What role does price play in the tickets you buy. Thinking about the new ticketing technology we have just discussed, what impact, if any, would you expect these systems to have on current ticket pricing? Would it provide cheaper ticket options, or would you expect them to be more expensive, or to stay the same? Why?

Thinking about the Smart cards we discussed, how much stored value would you be willing to purchase? Some of these systems have an automatic top up facility where you can link your credit or debit card so if the balance stored on the card went below £20 an automatic amount specified by you would be credited to the smart card. Does this sound attractive? What are the benefits of this system? And the draw backs? Would you be interested in a card like this? Why/not? What assurances would you need that the system would always deduct the correct fare? How could the system show you the correct fare had been deducted?

Communication
If this new technology was to be launched, what information would you need to know before you purchased it? What would be the best way to communicate this information to you? Would you need an incentive to use this new system? What form of incentive would attract you to use the new technology?

Registration Process
How would you expect to register for this new ticketing? What kind of personal information would you expect to provide. How do you feel about this? How would you feel about submitting your personal details? Do you think registration should be compulsory? What are the benefits of registering this way? What amount would you be prepared to pay for the deposit? Would you expect the deposit to be refundable? What would you expect to happen if your smart card was lost of stolen? Where would you expect this smart card

to be on sale? If there was a fee to buy the card from a person rather than a machine would this be acceptable?

Wrap

On the whole, what do you think of the new technologies we have discussed this evening? What do you think about combining ticket technology with other services such as stored payment or travel updates? Would this make the technology more or less appealing? Would any of the new technologies make you use rail travel more or less? Which and why? What would the ideal ticketing system look like in future? Which of the current issues we discussed would these new technologies over come? Overall, how would these technologies change your experience of travelling by rail?

5.2 Stimulus Materials

Oyster Card

- Smartcard which can store £90 of pay as you go credit plus your Travelcard or annual Bus Pass
- Available to buy from stations, 2,200 retail agents, over the internet
- Uses differential pricing
- Uses daily price capping
- Auto top-up (if price falls below £5 – the user can link to credit/debit card to top it up
- Recent introduction of Barclays credit card incorporating Oyster card

Chiltern Railways – Mobile Technology

- Customers buy their train tickets in the usual way and receive their tickets on their mobile phone.
- Ticket barcode sent to mobile via sms text message and verified by staff using scanners
- Scanners built into automated gate
- Available to customers buying tickets online
- The Print at home option is still available which allows users to print their ticket from their home

Trainline print@home

- Allows users to purchase and print their tickets from home
- Needed to install acrobat software to print tickets
- Needed to register separately with print@home even though you are registered with trainline

Helsinki City Transport - Finland

- Tickets can be ordered through text message function on a mobile phone
- The service delivers real-time information on buses or trams to mobile phones. Passengers can follow the route stop by stop during the trip and select an alarm from the mobile guide before the destination stop
- Also offers journey planning and stop-specific timetable information. Passengers can also pay their fare via the application and save journey details for later use
- The price of the ticket is charged against the telephone bill

Octopus card – Hong Kong

- Rechargeable contactless stored value Smartcard used to transfer electronic payments in online or offline systems in Hong Kong
- Widely used payment system for virtually all public transport in Hong Kong
- It is also used for payment at convenience stores, supermarkets, fast-food restaurants, on-street parking meters, car parks, and other point-of-sale applications such as service stations etc.

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